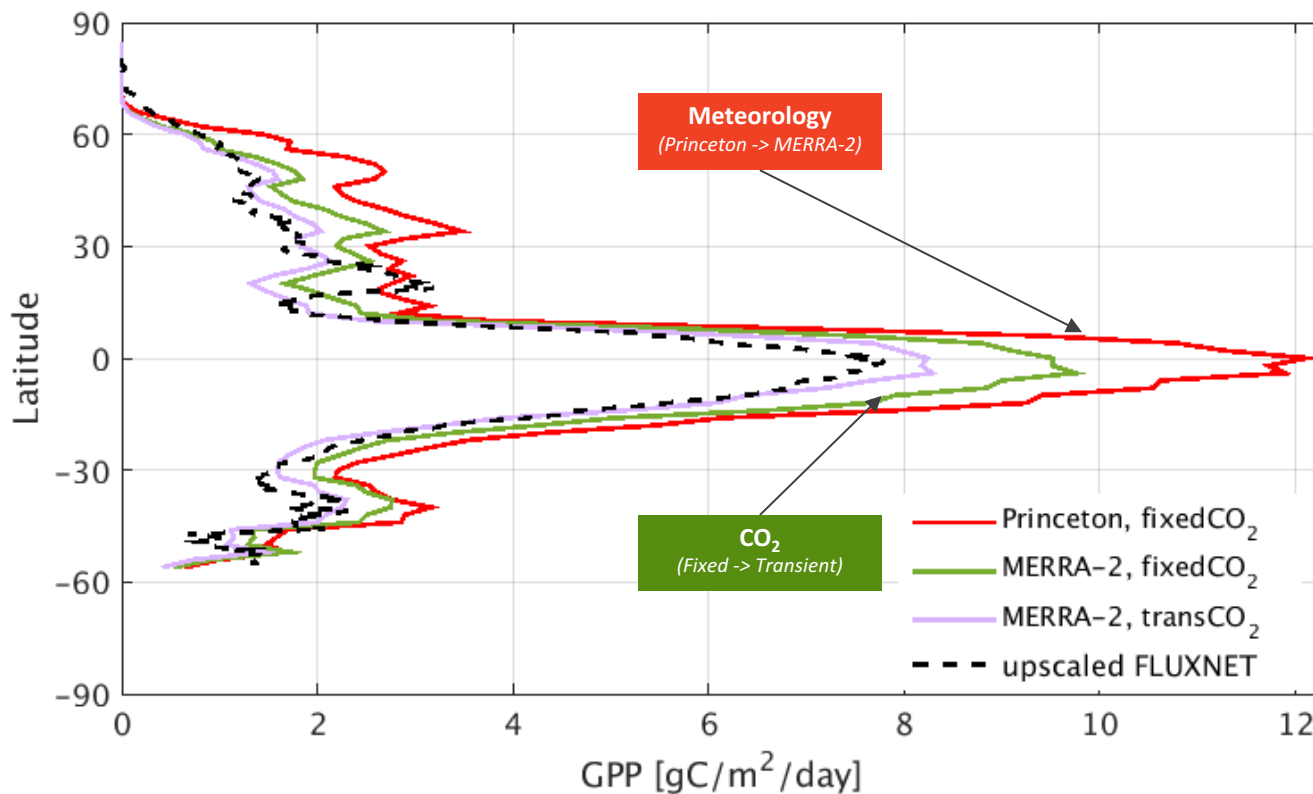


# Estimate of Gross Primary Production with the NASA GMAO Catchment-CN Model



Gross Primary Production (GPP) is the rate of uptake of  $\text{CO}_2$  from the atmosphere by photosynthesis. It depends on biological functions of the plants, as well as on the amount of atmospheric  $\text{CO}_2$  and the meteorological conditions.

Catchment-CN model results are compared to an observation-based estimate of GPP. Using climatological meteorology and fixed  $\text{CO}_2$  concentrations, the computed GPP (red) is more than 50% larger than the observational estimate (black dotted line). This disagreement is reduced substantially by using MERRA-2 meteorology (green) and more realistic  $\text{CO}_2$  (violet).